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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/756,872	01/12/2004	Saad Ahmed Sirohey	135488CT (15163US01)	9393

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EXAMINER	
KRASNIC, BERNARD	
ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/756,872	SIROHEY ET AL.	
	Examiner	Art Unit	
	Bernard Krasnic	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 April 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. The amendment filed 4/18/2007 have been entered and made of record.

2. In response to the amendments filed on 4/18/2007:

The "Objections to the specification" have been entered and therefore the Examiner withdraws the objections to the abstract of the specification.

The "Objections to the claims" have been entered and therefore the Examiner withdraws the objections to the claims.

The "Claim rejections under 35 U.S.C. 101" have been entered and therefore the Examiner withdraws the rejections under 35 U.S.C. 101.

3. Applicant's arguments with respect to independent claims 1, 9, 17 and 24 have been considered but are moot in view of the new ground(s) of rejection.

The Applicant has amended the independent claims to incorporate the further limitation "object shapes", where the display index values correspond to object shapes. However, the references used in the initial Non-Final Office Action are still believed to teach this further limitation; the Examiner still believes that Yoshida teaches this further limitation. As a brief example, discussion to independent claim 9 is explored.

The Yoshida reference teaches for claim 9 a system / Scheme for detection of Polyps (see Yoshida, page 965, Section – Overview of the CAD Scheme) for displaying a set of data with a virtually dissected anatomical structure / colon (see Yoshida,

abstract), said system comprising a computation unit / computation of 3D geometric features unit (see Yoshida, Fig. 1) for computing display index values / shape index and curvedness corresponding to object shapes / shape index and curvedness of colon in said first set of data / 3D colon structure (see Yoshida, page 969, Section – Detection of Polyp Candidates, paragraph 1, lines 11-13, the first data set represented by the 3D colon structure is shown in Fig. 2b, 5 and 9, and after the colon is separated, the 3D geometric features are considered, it is noted that the shape index and curvedness are 3D data sets which represent Applicants claimed display index values corresponding to object shapes and the claims do not refer to this data set as 2D in the claims as the Applicant argues in the amendment); an assignment unit / detection of polyp candidates unit (see Yoshida, Fig. 1) for assigning display attributes / color bar to said display index values / shape index and curvedness (see Yoshida, page 970, left paragraph starting with "Figure 12 demonstrates ...", the display attributes are the colored classes of the shape index values, Fig. 12 shows this color bar and the display attributes); a mapping unit / hysteresis thresholding unit within the detection of the polyps unit for mapping said display index values / 3D shape index and curvedness from a first set of data / 3D colon structure to a third set of data / 2D polyp detected images (see Yoshida, page 970, right paragraph starting with "Hysteresis thresholding ...", the hysteresis thresholding uses the 3D shape index value which represent the Applicants display index values to map the 2D detected polyp on the colonic wall, Fig. 13 shows a 2D data detection of a polyp after the hysteresis thresholding, therefore, the 3D first set of data [represented by the 3D colonic structure] is mapped [using the 3D shape and curvedness index values

which represent the display index values that correspond to object shape] into a 2D third set of data [represented by the 2D detected polyp image which is colored coded using the color bar], the Applicant argues in the amendment that this third set of data is taught by Yoshida to be a 3D detected polyp data set but as shown above, Yoshida discloses that the detected polyp data set using hysteresis thresholding is a 2D data set as shown in Fig. 13). Yoshida fails to disclose "a virtual dissection unit for creating a virtual dissection of the anatomical structure by mapping a first set of data to a second set of data wherein the second set of data corresponds to the virtual dissection" and "an overlay unit for organizing said third set of data for display with the virtually dissected anatomical structure".

The Bartroli reference was used as a second reference in the 35 U.S.C. 103 rejection to teach a virtual dissection unit / nonlinear virtual colon unfolding (see Bartroli, title) for creating a virtual dissection / virtual colon unfolding of the anatomical structure / colon structure or tubular organ (see Bartroli, page 418, last sentence in Section – Conclusion and Future Work) by mapping a first set of data / 3D colon structure data to a second set of data / 2D unfolded map (see Bartroli, abstract and Section – Conclusion and Future Work) wherein the second set of data corresponds to the virtual dissection.

The Krishnan reference was used as a third reference in the 35 U.S.C. 103 rejection to teach an overlay unit / fusion (220) for organizing said third set of data for display with the virtually dissected anatomical structure (see Krishnan, Fig. 2, paragraph [0006], lines 1-3, a fusion combiner combines two 2D data sets to create an enhanced view for a user diagnosis, therefore using the teachings of Yoshida and Bartroli,

Bartroli's 2D unfolded map [representing the virtual dissection] is combined with Yoshida's 2D detected polyp image [representing the third set of data]). The Applicant argues in the amendment that Krishnan is not an obvious teaching because Yoshida does not teach a 2D data set representing the third data set and therefore there is no obvious reason to combine, but as discussed above Yoshida does disclose that the third data set is the 2D detected polyp image [see Yoshida, Figure 13, the 2D detected polyp image is derived using the hysteresis thresholding] and therefore it would be obvious to combine Bartroli's 2D unfolded map image with Yoshida's 2D detected polyp image using Krishnan's teachings.

Therefore, the references used in the initial Non-Final Office Action are still used to teach the limitations of the amended claims.

4. Applicant's arguments filed 4/18/2007 have been fully considered but they are not persuasive.

The Applicant alleges, "To establish a prima facie case of ..." in page 8, "For example, claim 1 recites ..." in pages 8-9, and "Since Yoshida in view of ..." in page 9, and states respectively that Yoshida in view of Bartroli and further in view of Krishnan do not teach or suggest each and every element in the claims 1-31 individually or in combination and gives an example that the limitation "mapping said display index values from the first set of data to a third set of data" of claim 1. However the Examiner disagrees because as discussed above, Yoshida does disclose a mapping unit / hysteresis thresholding unit within the detection of the polyps unit for mapping said

display index values / 3D shape index and curvedness from a first set of data / 3D colon structure to a third set of data / 2D polyp detected images (see Yoshida, page 970, right paragraph starting with "Hysteresis thresholding ...", the hysteresis thresholding uses the 3D shape index value which represent the Applicants display index values to map the 2D detected polyp on the colonic wall, Fig. 13 shows a 2D data detection of a polyp after the hysteresis thresholding, therefore, the 3D first set of data [represented by the 3D colonic structure] is mapped [using the 3D shape and curvedness index values which represent the display index values that correspond to object shape] into a 2D third set of data [represented by the 2D detected polyp image which is colored coded using the color bar], the Applicant argues in the amendment that this third set of data is taught by Yoshida to be a 3D detected polyp data set but as shown above, Yoshida discloses that the detected polyp data set using hysteresis thresholding is a 2D data set as shown in Fig. 13). The Applicant also argues that the mapping is done using distance mapping and shape mapping, however the claim does not consist of these limitations. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., distance mapping and shape mapping) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Therefore the rejection to claim 1 and its dependent claims 2-8 are maintained.

The Applicant alleges, "In addition, claim 9 recites ..." in pages 9-10, and "Since Yoshida in view of ..." in page 10, and states respectively the same arguments as for claim 1 above. Once again, the Examiner disagrees using the same understanding as explored above and therefore the rejection to claim 9 and its dependent claims 10-16 are maintained.

The Applicant alleges, "In addition, claim 17 ..." in page 10, and "Since Yoshida ..." in pages 10-11, and states respectively that the limitation "selecting various characteristics of the anatomical structure for enhancement" of claim 17 is not taught by Yoshida in view of Bartroli and further in view of Krishnan individually or in combination because they do not teach the various characteristics as defined in the Applicants specification [paragraphs 41-44 and 52-55] to be shape [cup, rut, saddle, ridge, and cap], liquid, or fecal matter. However the Examiner disagrees firstly because Yoshida does disclose characteristics defined as shape [cup, rut, saddle, ridge, and cap]. Also, claim 17 does not consist of these limitations. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., shape [cup, rut, saddle, ridge, and cap], liquid, or fecal matter) are not recited in the rejected claim 17. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Therefore the rejection to claim 17 is maintained. Therefore the rejection to claim 17 and its dependent claims 18-23 are maintained.

The Applicant alleges, "In addition, claim 24 recites ..." in page 11, and "Since Yoshida in view of ..." in page 11, and states respectively the same arguments as for claim 1 above. Once again, the Examiner disagrees using the same understanding as explored above and therefore the rejection to claim 24 and its dependent claims 25-31 are maintained.

The Applicant alleges, "Applicants respectfully note that ..." in paragraph 1 of page 12, "In contrast, Applicants respectfully draw ..." in paragraph 2 of page 12, "Applicants also respectfully draw the attention ..." in paragraph 2 of page 13, and "Applicants also respectfully draw the attention ..." in paragraph 3 of page 13, and states respectfully that the Yoshida reference teaches detection and visualization of polyps in 3D space and therefore that the Krishnan reference has no motivation to combine because the Krishnan reference teaches the combination of two 2D images and not a combination of a 2D with a 3D image. However the Examiner disagrees because as discussed above, Yoshida does disclose a mapping unit / hysteresis thresholding unit within the detection of the polyps unit for mapping said display index values / 3D shape index and curvedness from a first set of data / 3D colon structure to a third set of data / 2D polyp detected images (see Yoshida, page 970, right paragraph starting with "Hysteresis thresholding ...", the hysteresis thresholding uses the 3D shape index value which represent the Applicants display index values to map the 2D detected polyp on the colonic wall, Fig. 13 shows a 2D data detection of a polyp after the hysteresis thresholding, therefore, the 3D first set of data [represented by the 3D colonic structure] is mapped [using the 3D shape and curvedness index values which

represent the display index values that correspond to object shape] into a 2D third set of data [represented by the 2D detected polyp image which is colored coded using the color bar], the Applicant argues in the amendment that this third set of data is taught by Yoshida to be a 3D detected polyp data set but as shown above, Yoshida discloses that the detected polyp data set using hysteresis thresholding is a 2D data set as shown in Fig. 13). Therefore, since Yoshida does teach the third set of data is the 2D detected polyp image and Bartroli teaches that the second set of data is the 2D unfolded virtual colon, it would have been obvious to use the Krishnan reference to teach the combining or overlaying of these two 2D images. The Applicant also states that "Yoshida actually teaches that its 3D visualization technique is allegedly superior to 2D visualization techniques" and therefore only teaches "detection and visualization of polyps in 3D space" and not 2D space. However the Examiner disagrees because when looking at page 964 of Yoshida, Yoshida states "Several studies have evaluated polyp detection with two-dimensional (2D) axial scans alone compared with axial images in conjunction with three-dimensional (3D) endoluminal views" and that these "studies show that the diagnostic quality of the combined approach is superior to that of using axial scans alone". Therefore unlike the interpretation the Applicant has concluded, the Yoshida reference actually uses both 3D and 2D data for polyp detection and as Fig. 13 shows, Yoshida does display a 2D detected polyp image using the hysteresis thresholding algorithm. Therefore once again, the Krishnan reference would therefore be obvious because Krishnan teaches the combination or overlapping of two 2D image data.

The Applicant alleges, "In addition, claims 1, 9, and 24 ..." in page 14, and states respectively that the amended limitation of "object shapes" renders these independent claims allowable because none of the references teach "a computation unit for computing display index values corresponding to object shapes in said first set of data. However the Examiner disagrees because as discussed above, Yoshida does disclose a computation unit / computation of 3D geometric features unit (see Yoshida, Fig. 1) for computing display index values / shape index and curvedness corresponding to object shapes / shape index and curvedness of colon in said first set of data / 3D colon structure (see Yoshida, page 969, Section – Detection of Polyp Candidates, paragraph 1, lines 11-13, the first data set represented by the 3D colon structure is shown in Fig. 2b, 5 and 9, and after the colon is separated, the 3D geometric features are considered, it is noted that the shape index and curvedness are 3D data sets which represent Applicants claimed display index values corresponding to object shapes and the claims do not refer to this data set as 2D in the claims as the Applicant argues in the amendment). Once again, the Krishnan reference would be obvious because Krishnan teaches the combination or overlapping of two 2D image data [Yoshida's 2D detected polyp image and Bartroli's 2D unfolded virtual colon].

The Applicant alleges, "For at least these reasons ..." in page 14, and states respectively that the claim rejections should be withdrawn and that the claims are believed to be in condition for allowance. However the Examiner disagrees because as discussed above, the claim rejections are maintained and therefore no claim is deemed in condition for allowance.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-16 and 24-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida ("Computer-aided diagnosis scheme for detection of polyps at CT Colonography" - Radio Graphics 2002 - 22: pgs. 963-979 - Imaging & Therapeutic Technology) in view of Bartroli ("Nonlinear Virtual Colon Unfolding" - IEEE - pages 411-418, Oct. 2001), and further in view of Krishnan et al (US 2004/0013290 A1).

Re Claim 9: Yoshida discloses a system / Scheme for detection of Polyps (see Yoshida, page 965, Section – Overview of the CAD Scheme) for displaying a set of data with a virtually dissected anatomical structure / colon (see Yoshida, abstract), said system comprising a computation unit / computation of 3D geometric features unit (see Yoshida, Fig. 1) for computing display index values / shape index and curvedness corresponding to object shapes / shape index and curvedness of colon in said first set of data / 3D colon structure (see Yoshida, page 969, Section – Detection of Polyp Candidates, paragraph 1, lines 11-13, the first data set represented by the 3D colon structure is shown in Fig. 2b, 5 and 9, and after the colon is separated, the 3D geometric features are considered, it is noted that the shape index and curvedness are 3D data sets which represent Applicants claimed display index values corresponding to

object shapes and the claims do not refer to this data set as 2D in the claims as the Applicant argues in the amendment); an assignment unit / detection of polyp candidates unit (see Yoshida, Fig. 1) for assigning display attributes / color bar to said display index values / shape index and curvedness (see Yoshida, page 970, left paragraph starting with "Figure 12 demonstrates ...", the display attributes are the colored classes of the shape index values, Fig. 12 shows this color bar and the display attributes); a mapping unit / hysteresis thresholding unit within the detection of the polyps unit for mapping said display index values / 3D shape index and curvedness from a first set of data / 3D colon structure to a third set of data / 2D polyp detected images (see Yoshida, page 970, right paragraph starting with "Hysteresis thresholding ...", the hysteresis thresholding uses the 3D shape index value which represent the Applicants display index values to map the 2D detected polyp on the colonic wall, Fig. 13 shows a 2D data detection of a polyp after the hysteresis thresholding, therefore, the 3D first set of data [represented by the 3D colonic structure] is mapped [using the 3D shape and curvedness index values which represent the display index values that correspond to object shape] into a 2D third set of data [represented by the 2D detected polyp image which is colored coded using the color bar], the Applicant argues in the amendment that this third set of data is taught by Yoshida to be a 3D detected polyp data set but as shown above, Yoshida discloses that the detected polyp data set using hysteresis thresholding is a 2D data set as shown in Fig. 13).

However, Yoshida fails to disclose a virtual dissection unit for creating a virtual dissection of the anatomical structure by mapping a first set of data to a second set of

data wherein the second set of data corresponds to the virtual dissection and an overlay unit for organizing said third set of data for display with the virtually dissected anatomical structure.

Bartroli discloses a virtual dissection unit / nonlinear virtual colon unfolding (see Bartroli, title) for creating a virtual dissection / virtual colon unfolding of the anatomical structure / colon structure or tubular organ (see Bartroli, page 418, last sentence in Section – Conclusion and Future Work) by mapping a first set of data / 3D volume colon structure data to a second set of data / 2D unfolded map (see Bartroli, abstract and Section – Conclusion and Future Work) wherein the second set of data corresponds to the virtual dissection.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Yoshida's device using Bartroli's teachings by attaching the 2D virtual dissection unit for the overlaying unit in order to provide a different visualization technique to further enhance the polyp detection (see Bartroli, abstract).

However, Yoshida as modified by Bartroli, still fails to disclose or fairly suggest an overlay unit for organizing said third set of data for display with the virtually dissected anatomical structure.

Krishnan discloses overlay unit / fusion (220) for organizing said third set of data for display with the virtually dissected anatomical structure (see Krishnan, Fig. 2, paragraph [0006], lines 1-3, a fusion combiner combines two 2D data sets to create an enhanced view for a user diagnosis, therefore using the teachings of Yoshida and

Bartroli, Bartroli's 2D unfolded map [representing the virtual dissection] is combined with Yoshida's 2D detected polyp image [representing the third set of data]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Yoshida's device, as modified by Bartroli, using Krishnan's teachings by attaching the overlay unit to further enhance the diagnosis and allow a user to view more useful information (see Krishnan, paragraph [0006], lines 1-3).

Re Claim 10: Yoshida further discloses an anatomical structure is the colon (see abstract).

Re Claim 11: Yoshida further discloses the display attribute is color / color bar (see page 970, left paragraph starting with "Figure 12 demonstrates ...", the display attributes are the colored classes of the shape index values, Fig. 12 shows this color bar and the display attributes).

Re Claim 12: Yoshida further discloses highlighting unit / coloring unit within the Detection of Polyp unit for highlighting / coloring select display index values / shape index values according to user input (see page 970, first two left paragraphs starting with "Figure 12 demonstrates ...", the display attributes are the colored or highlighted classes of the shape index values and the shape classes are specified originally by the

user as for example a cap class, the cap class has the shape index values between .9 and 1 as shown in Fig. 10, further shapes are cup, rut, saddle, and ridge).

Re Claim 13: Yoshida further discloses highlighted / coloring select said display index values / shape index values are shape data (see page 970, first two left paragraphs starting with "Figure 12 demonstrates ...", the display attributes are the colored or highlighted classes of the shape index values, shapes are cap, cup, rut, saddle, and ridge).

Although Yoshida, as modified by Bartroli and Krishnan doesn't specifically disclose, as recited in claim 14 and claim 15, highlighted select display values are fluid data and contrast enhanced fecal matter data, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have such a feature where the select display values are fluid data and contrast enhanced fecal matter data because these data's have there own specific shape, curvedness, and texture values and ranges which a detection could possibly be made for.

Re Claim 16: Bartroli further discloses first set (the first set is represented by Yoshida's 3D colon structure as discussed above) of data is three-dimensional and said second / 2D unfolded map (see Bartroli, abstract and Section – Conclusion and Future Work) and third sets (the third set is represented by Yoshida's 2D detected polyp image as discussed above) of data are two-dimensional.

As to claims 1-8, the claims are the corresponding method claims to claims 9-16 respectively. The discussions are addressed with regard to claims 9-16.

As to claims 24-31, the claims are the corresponding computer readable medium encoded with a computer executable program claims to claims 9-16 respectively. The discussions are addressed with regard to claims 9-16.

7. Claims 17-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshida in view of Bartroli.

Re Claim 17: Yoshida discloses a method for viewing a virtually dissected anatomical structure, said method comprising instructing the display of an anatomical structure / colon; selecting various characteristics / shape index and curvedness of the anatomical structure / colon for enhancement / coloring or highlighting (see page 969, Section – Detection of Polyp Candidates, paragraph 1, lines 11-13, the first data set represented by the colon structure is shown in Fig. 2b, 5 and 9, and after the colon is separated, the 3D geometric features [shape index and curvedness] are considered); observing said selected highlighted / color bar characteristics / shaped index or curvedness and the virtual dissection (see page 970, left paragraph starting with "Figure 12 demonstrates ...", the shape index values or the characteristics are colored based on the classes of the shape index values, Fig. 12 shows this color bar and the display attributes, Fig. 13

shows a 2D data detection of a polyp using coloring or highlighting after the hysteresis thresholding).

However, Yoshida fails to disclose or fairly suggest that the anatomical structure is a virtual dissection anatomical structure.

Bartroli discloses that the anatomical structure is of a virtual dissected anatomical structure (see right side of Fig. 1, abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Yoshida's method using Bartroli's teachings by replacing Yoshida's anatomical colon structure with the virtual dissection structure of a colon in order to provide a different visualization technique to further enhance the polyp detection (see Bartroli, abstract).

Re Claim 18: Bartroli further discloses displaying said virtual dissection (Bartroli discloses the virtual dissection) and said selected characteristics (Yoshida discloses the coloring or highlighting of the shape classes on the anatomical structure).

Re Claim 19: Yoshida further discloses an anatomical structure is a colon (see abstract).

Re Claim 20: Yoshida further discloses the colon has characteristics comprising cup, rut, saddle, ridge, and cap (see Fig. 10).

Although Yoshida as modified by Bartroli doesn't specifically disclose, as recited in claim 21 and claim 22, selected characteristic for enhancement comprises fluid data and contrast enhanced fecal matter data, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have such a feature where the select characteristic for enhancement are fluid data and contrast enhanced fecal matter data because these data's have there own specific shape, curvedness, and texture values and ranges which a detection could possibly be made for.

Re Claim 23: Yoshida further discloses the selected characteristic / shaped index values for enhancement / coloring or highlighting comprises shape data / shaped index values (see page 970, first two left paragraphs starting with "Figure 12 demonstrates ...", the shape index classes are colored or highlighted based on the shape index values, shapes are cap, cup, rut, saddle, and ridge).

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bernard Krasnic whose telephone number is (571) 270-1357. The examiner can normally be reached on Mon-Thur 8:00am-4:00pm and every other Friday 8:00am-3:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jingge Wu can be reached on (571) 272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Bernard Krasnic
June 14, 2007

JINGGE WU
SUPERVISORY PATENT EXAMINER